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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/594,312

09/27/2006

Tadashi Yokoi

2006_1596A

3415

513 7590 02/25/2009

WENDEROTH, LIND & PONACK, L.L.P.

1030 15th Street, N.W.,

Suite 400 East

Washington, DC 20005-1503

EXAMINER

ELLIS, RYAN H

ART UNIT

PAPER NUMBER

3745

MAIL DATE

DELIVERY MODE

02/25/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/594,312	Applicant(s) YOKOI, TADASHI	
	Examiner RYAN ELLIS	Art Unit 3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/27/2007, 09/27/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 11, 13, 15, and 21 are objected to because of the following informalities:
In Claims 11, 13, 15 and 21 line 5 the word "end" should be replaced by "and".
Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 11 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The phrase "power generator is connected to the output end of said outer race side rotor directly or through a speed-up device or the like" renders the claim indefinite because it does not disclose what the power generator is connected to.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

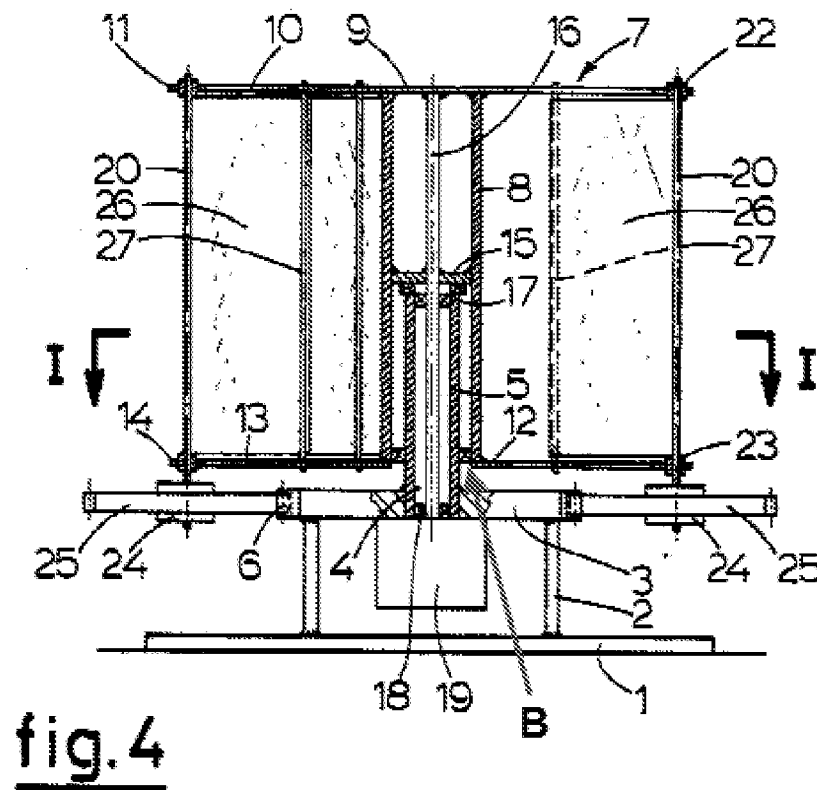
5. Claims 15-18 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 4,032,257 to de Haas.

de Hass teaches:

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In Reference to Claim 15

A cantilever type vertical axis wind turbine featured by comprising an outer race side rotor (hub 8) having a plurality of blades (vanes 26) for producing a rotational torque with wind, an inner race side stationary column (support member 5) having one free end externally unconstrained and the other stationary and, a plurality of bearings (17 and B, see Figure 4 as reproduced and annotated by the examiner below) mounted between said outer race side rotor and said inner race side stationary column for supporting said outer race side rotor on said inner race side stationary column, and a torque transmission shaft (16) of a cylindrical column or hollow cylindrical shape whose lower end portion having a function of an output shaft terminal of the wind turbine and passes through the inside of said inner race side stationary column in the direction from the free end to the stationary end, wherein the position of said outer race side rotor, which is face to or adjacent to said free end of the stationary column, is the output end for said rotational torque, and said torque transmission shaft is connected to said output end.



In Reference to Claim 16

The cantilever type vertical axis wind turbine set forth in claim 15 (see rejection of claim 16 above), featured in that a bearing (18) for the torque transmission shaft (16) for guiding the rotating Position while suppressing fluctuation of said torque transmission shaft is disposed on the outer periphery of said torque transmission shaft.

In Reference to Claim 17

The cantilever type vertical axis wind turbine set forth in claim 15 (see rejection of claim 15 above), featured in that said inner race side stationary column (support member 5) is mounted on a support pedestal (frame legs 2 and frame plate 3) having an inner space, the power generator (19) is installed on a

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foundation in the inner space under said support pedestal, and the input shaft of the power generator is connected directly or indirectly to a torque transmission shaft (16) extending from the inside of said inner race side stationary column to the inner space in the support pedestal. The generator is installed on the foundation (frame plate 3) of the windmill. It is inherent that the torque transmission is connected to the generator input shaft even though it is not shown in the Figures.

In Reference to Claim 18

The cantilever type vertical axis wind turbine set forth in claim 17 (see rejection of claim 17 above), featured in that a bearing (18) for the torque transmission shaft (16) for guiding the rotating position while suppressing fluctuation of said torque transmission shaft is disposed on the outer periphery of said torque transmission shaft.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 4,086,023 to Morgan in view of US Patent No. 4,422,825 to Boswell.

In Reference to Claim 11

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Morgan teaches:

A cantilever type vertical axis wind turbine featured by comprising an outer race side rotor (support means 14) having a plurality of blades (vanes 22) for producing a rotational torque with wind, an inner race side stationary column (support 20) of a hollow structure having one free end externally unconstrained and the other stationary and, a bearing (bushing 40) mounted between said outer race side rotor and said inner race side stationary column for supporting said outer race side rotor on the inner race side stationary column, and a power generator (alternator 26) installed at the free end of said inner race side stationary column, wherein the position of said outer race side rotor, which is face to or adjacent to said free end of the stationary column, is the output end for said rotational torque, the rotational main shaft of said power generator is connected to the output end of said outer race side rotor directly (support shaft 12) or through a speed-up device or the like, and an electric power line (leads 32) connected to said power generator is arranged within said inner race side stationary column.

Morgan fails to teach:

A plurality of bearings mounted between said outer race side rotor and said inner race side stationary column for supporting said outer race side rotor on the inner race side stationary column.

Boswell teaches:

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A plurality of bearings (assemblies 16 and 50) mounted between said outer race side rotor and said inner race side stationary column for supporting said outer race side rotor on the inner race side stationary column. It would have been obvious to one having ordinary skill in the art at the time of the invention to have incorporated the plurality of bearings of Boswell for the purpose of better supporting the windmills rotational shafts.

In Reference to Claim 13

Morgan teaches:

A cantilever type vertical axis wind turbine featured by comprising an outer race side rotor (support means 14) having a plurality of blades (vanes 22) for producing a rotational torque with wind, an inner race side stationary column (support 20) of a hollow structure having one free end externally unconstrained and the other stationary and, a bearing (bushing 40) mounted between said outer race side rotor and said inner race side stationary column for supporting said outer race side rotor on the inner race side stationary column, and a power generator (alternator 26) installed at the free end of said inner race side stationary column, wherein the position of said outer race side rotor, which is face to or adjacent to said free end of the stationary column, is the output end for said rotational torque, the rotational main shaft of said power generator is connected to the output end of said outer race side rotor directly (support shaft 12) or through a speed-up device or the like, and an electric power line (leads 32) connected to said power generator is arranged within said inner race side

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stationary column, and at least one bearing (bushing 40) disposed on the lower side under the wind pressure center position.

Morgan fails to teach:

A plurality of bearings mounted between said outer race side rotor and said inner race side stationary column for supporting said outer race side rotor on the inner race side stationary column, and wherein said bearings include at least one bearing disposed on the upper side above said wind pressure center position, on which the wind acts horizontally on the outer race side rotor.

Boswell teaches:

A plurality of bearings (assemblies 16 and 50) mounted between said outer race side rotor and said inner race side stationary column for supporting said outer race side rotor on the inner race side stationary column, and wherein said bearings include at least one bearing (assembly 16) disposed on the upper side above said wind pressure center position, on which the wind acts horizontally on the outer race side rotor. It would have been obvious to one having ordinary skill in the art at the time of the invention to have incorporated the plurality of bearings of Boswell for the purpose of better supporting the windmills rotational shafts.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 4,086,023 to Morgan in view of US Patent No. 4,422,825 to Boswell and in further view of US Patent No. 4,767,378 to Obermann.

In Reference to Claim 12

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Morgan as modified by Boswell teaches:

The cantilever type vertical axis wind turbine set forth in claim 11 (see rejection of claim 11 above).

Morgan as modified by Boswell fails to teach:

A magnetic coupling for transmitting a rotational torque of said outer race side rotor to said power generator is disposed between said outer race side rotor and said power generator.

Obermann teaches:

A magnetic coupling (1) for transmitting a rotational torque of said outer race side rotor to said power generator is disposed between said outer race side rotor and said power generator. It would have been obvious to one having ordinary skill in the art at the time of the invention to have incorporated the magnetic coupling of Obermann into the windmill of Morgan as modified by Boswell for the purpose of transmitting power without loss of torque due to friction.

In Reference to Claim 14

Morgan as modified by Boswell teaches:

The cantilever type vertical axis wind turbine set forth in claim 13 (see rejection of claim 13 above).

Morgan as modified by Boswell fails to teach:

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A magnetic coupling for transmitting a rotational torque of said outer race side rotor to said power generator is disposed between said outer race side rotor and said power generator.

Obermann teaches:

A magnetic coupling (1) for transmitting a rotational torque of said outer race side rotor to said power generator is disposed between said outer race side rotor and said power generator. It would have been obvious to one having ordinary skill in the art at the time of the invention to have incorporated the magnetic coupling of Obermann into the windmill of Morgan as modified by Boswell for the purpose of transmitting power without loss of torque due to friction.

9. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 4,032,257 to de Haas in view of US Patent No. 3,910,717 to Thome.

In Reference to Claim 19

De Haas teaches:

The cantilever type vertical axis wind turbine set forth in claim 15 (see rejection of claim 15 above).

De Haas fails to teach:

The top of said torque transmission shaft is connected to said output end of said outer race side rotor of the wind turbine through a flexible joint.

Thome teaches:

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The top of said torque transmission shaft (fan shaft 12') is connected to said output end of said outer race side rotor of the wind turbine through a flexible joint (col. 4, ll. 65-70 and col. 5, ll. 1-3). It would have been obvious to one having ordinary skill in the art at the time of the invention to have incorporated the flexible joint of Thome into the wind machine of de Haas for the purpose of allowing the joint to have a resilient joint that is capable of handling stresses without breaking.

In Reference to Claim 20

De Haas as modified by Thome teaches:

The cantilever type vertical axis wind turbine set forth in claim 19 (see rejection of claim 19 above), featured in that a bearing (18) for the torque transmission shaft (16) for guiding the rotating position while suppressing fluctuation of said torque transmission shaft is disposed on the outer periphery of said torque transmission shaft.

10. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 4,032,257 to de Haas in view of US Patent No. 4,422,825 to Boswell.

In Reference to Claim 21

De Haas teaches:

A cantilever type vertical axis wind turbine featured by comprising an outer race side rotor (hub 8) having a plurality of blades (vanes 26) for producing a rotational torque with wind, an inner race side stationary column

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(support member 5) having one free end externally unconstrained and the other stationary and, a plurality of bearings (17 and B, see Figure 4 as reproduced and annotated by the examiner above) mounted between said outer race side rotor and said inner race side stationary column for supporting said outer race side rotor on said inner race side stationary column, and a torque transmission shaft (16) of a cylindrical column or hollow cylindrical shape having a function of an output shaft terminal of the wind turbine and passes through the inside of said inner race side stationary column in the direction from the free end to the stationary end, wherein the position of said outer race side rotor, which is face to or adjacent to said free end of the stationary column, is the output end for said rotational torque, and said torque transmission shaft is connected to the output end and at least one bearing (B) disposed on the lower side under said wind pressure center position.

De Haas fails to teach:

Wherein said bearings include at least one bearing disposed on the upper side above the wind pressure center position, on which the wind acts horizontally on said outer race side rotor.

Boswell teaches:

Wherein said bearings include at least one bearing (assembly 16) disposed on the upper side above the wind pressure center position, on which the wind acts horizontally on said outer race side rotor. It would have been obvious to one having ordinary skill in the art at the time of the invention to have

incorporated the placement of the bearing of Boswell into the windmill of de Haas to better distribute the force of the wind on the shafts.

In Reference to Claim 22

De Haas as modified by Boswell teaches:

The cantilever type vertical axis wind turbine set forth in claim 21 (see rejection of claim 22 above), featured in that said inner race side stationary column (support member 5) is mounted on a support pedestal (frame legs 2 and frame plate 3) having an inner space, the power generator (19) is installed on a foundation in the inner space under said support pedestal, and the input shaft of the power generator is connected directly or indirectly to a torque transmission shaft (16) extending from the inside of said inner race side stationary column to the inner space in the support pedestal. The generator is installed on the foundation (frame plate 3) of the windmill. It is inherent that the torque transmission is connected to the generator input shaft even though it is not shown in the Figures.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent No. 6,537,018 to Streetman discloses a generator on the top of the turbine. US Patent No. 4,281,965 to Stjernholm discloses a stationary inner race with a rotating outer race which is connected to a rotating transmission shaft

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RYAN ELLIS whose telephone number is (571)270-7414. The examiner can normally be reached on Monday-Friday; 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ED LOOK can be reached on (571)272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RHE/

/Ninh H. Nguyen/
Primary Examiner, Art Unit 3745